

## **2.5 Paleontological Resources**

### **2.5.1 Existing Conditions**

#### **2.5.1.1 *San Diego County Paleontological Resources Sensitivity Map***

As depicted on Figure 2.5-1, *San Diego County Paleontological Resources Potential and Sensitivity Map*, the Project site is located in an area with geologic formations that have a high potential for the discovery of paleontological resources

#### **2.5.1.2 *Site Geology***

The Project site is located within the Coastal Plain geomorphic region. The Coastal Plain region is an area characterized by interbedded marine and non-marine sedimentary rock units deposited over the last 75 million years. Many of the sedimentary rock units within the Coastal Plain region contain paleontological resources.

No paleontological field survey was conducted of the Project site because paleontological resources generally cannot be seen on the surface of the ground; however, understanding the geology of a particular area and the fossil productivity of formations that occur in that area make it possible to predict the probability of encountering paleontological resources during earthwork activities. The following discussion provides a general overview of the types of geologic deposits which underlay the Project site and have potential to contain significant paleontological resources. The paleontological sensitivity of each of the on-site geological formations is also summarized in Table 2.5-1, *On-Site Geologic Conditions and Associated Paleontological Sensitivity*.

#### **Recent Alluvium**

Recent alluvial deposits underlay the north-south trending drainage channel in the eastern portion of the Project site. Recent alluvial deposits consist of nine (9) to 10 feet of very moist, dark gray brown, silty, sandy clays with gravel and cobble. Recent alluvium deposits are very young geologically (approximately 0 to 10,000 years old) and are closely associated with modern drainages. Due to the relatively young age of the recent alluvial deposits and their association with modern drainages, this sediment is considered too young to yield scientifically significant paleontological resources and is assigned a low paleontological resource sensitivity rating.

#### **Unnamed River Terrace Deposits**

Quaternary-age unnamed river terrace deposits underlie the topsoil in the southern-half of the site. Terrace deposits on-site consist of two distinct layers. The upper layer consists of one (1) to eight (8) feet of moist, brown sandy clay; the lower layer consists of moist, tan to brown, silty and clayey sand with varying amounts of gravel. These deposits generally represent the sediments of ancient river courses and occur along the margins of larger coastal river valleys. Unnamed river terrace deposits range from 10,000 to 500,000 years old and have produced fossils of “Ice Age” mammals in various locations in San Diego County. Unnamed river terrace deposits are assigned a moderate paleontological resources sensitivity rating.

#### **Otay Formation**

The northern half of the site is underlain by Tertiary-age Otay Formation. The on-site Otay Formation primarily consists of dense, damp to moist, light gray, silty, fine to medium, slightly

cemented sandstone and fine sandy siltstone with lenses of silty and sandy claystone. The Otay Formation is a fluvial sedimentary rock, and numerous fossil localities have been discovered throughout San Diego County in this formation. Based on recent discoveries, the Otay Formation is considered to be the richest source of late Oligocene terrestrial vertebrates in California. Due to its potential to contain important, well-preserved fossils, the Otay Formation is assigned a high paleontological resource sensitivity rating.

**Table 2.5-1 ON-SITE GEOLOGIC CONDITIONS AND ASSOCIATED PALEONTOLOGICAL SENSITIVITY**

Geologic Unit	Paleontological Sensitivity Rating
Alluvium (Qal)	Low Sensitivity
Terrace Deposits (Qt)	Moderate Sensitivity
Otay Formation (To)	High Sensitivity

Source: County of San Diego (2007)

## 2.5.2 Analysis of Project Effects and Determination as to Significance

### 2.5.2.1 East Otay Mesa Specific Plan Final EIR

The EOMSP Final EIR (1994) did not address impacts to paleontological resources. As such, the County of San Diego has determined that the current SEIR must evaluate the potential for site-specific impacts to previously undisclosed sensitive paleontological resources.

### 2.5.2.2 Paleontological Resources

#### Guidelines for the Determination of Significance

The Project would have a significant adverse effect on paleontological resources if the following would occur as a result of a Project-related component:

- (1) *The Project proposes activities directly or indirectly damaging to a unique paleontological resource or site. A significant impact to paleontological resources may occur as a result of the Project if Project-related grading or excavation would disturb the substratum or parent material below the major soil horizons in any paleontologically sensitive area of the County, as shown on the San Diego County Paleontological Resources Potential and Sensitivity Map Figure 2.5-1.*

This guideline from the County's Guidelines for Determining Significance – Paleontological Resources (2008) is derived from CEQA (Appendix G). It requires the evaluation of geologic formations on the project site to determine whether or not a proposed action will have a significant effect upon paleontological resources.

#### Analysis

As depicted on Figure 2.5-1, the Project site is located in an area classified by the County as having a high potential to contain paleontological resources. In addition, a site-specific analysis determined that the site contains geologic formations with moderate and high sensitivities for paleontological resources. Implementation of the proposed Project would require grading activities which have the potential to impact sensitive paleontological resources that may be buried beneath the surface, particularly within geologic formations identified as having a “moderate” or “high” paleontological sensitivity rating. Therefore, because implementation of the proposed Project would result in

disturbances to on-site geologic formations that are rated as “moderate” and “high” with respect to paleontological sensitivity, there is the potential for significant impacts to subsurface paleontological resource deposits that have not previously been identified. This is regarded as a significant direct impact (**Significant Direct Impact PR-1**).

### **2.5.3 Cumulative Impact Analysis**

#### **2.5.3.1 Cumulative Impacts Identified by the EOMSP Final EIR**

The EOMSP Final EIR (1994) did not identify or disclose any cumulatively significant impacts to paleontological resources.

#### **2.5.3.2 Project-Specific Cumulative Impact Analysis**

A study area was defined in order to assess the cumulative effect of the Project’s impacts to paleontological resources. In defining the study area, geologic maps for the surrounding areas were researched to identify all geologic formations within the Project vicinity that are identified as having a moderate or high likelihood of containing sensitive paleontological resources. The resulting study area encompassed the County of San Diego and City of San Diego portions of Otay Mesa which are identified as containing Otay Formation geologic units. Figure 2.5-2, *Cumulative Study Area – Paleontological Resources*, depicts the cumulative study area along with a depiction of the cumulative projects considered in the analysis.

Research was conducted which resulted in a cumulative study area for paleontological resources, depicted on Figure 2.5-2. The study area includes 28 past, present, and reasonably foreseeable projects that might have potential impacts to paleontological resources. EIR Table 1-7 provides a summary of all the cumulative projects along with their identified impacts to each of the environmental issue areas addressed by this EIR. As identified in EIR Table 1-9, *Cumulative Projects CEQA Summary*, eight projects within the cumulative study area contain paleontologically sensitive geologic formations and have the potential to result in significant impacts to paleontological resources, although it is likely that more projects within the cumulative study area would result in significant impacts to paleontological resources once the environmental analysis for these projects is completed. It should be noted that the City of San Diego has similar thresholds of significance and monitoring requirements for paleontological resources; as such, impacts to paleontological resources within the City and County portions of Otay Mesa would be subject to similar mitigation requirements. As required mitigation, all of these projects would be required to provide paleontological monitors during grading and earthwork activities. In the event that fossils were uncovered during earthwork and grading activities, a fossil data recovery program would be implemented for each project, which would consist of collecting, cleaning, and cataloguing significant discovered fossils.

Nonetheless, because impacts to significant paleontological resource deposits are anticipated within the cumulative study area, and because grading activities associated with the proposed Project also have the potential to result in significant impacts to sensitive paleontological resources, implementation of the proposed Project would result in a cumulatively significant impact to paleontological resources (**Significant Cumulative Impact PR-1**).

### 2.5.4 Significance of Impacts Prior to Mitigation

Significant Direct and Cumulative Impact PR-1: The potential exists for the project to uncover, damage or destroy significant paleontological resources (*i.e.*, fossils) during Project grading and excavation activities in geologic formations with high and moderate paleontological sensitivities. Such impacts would be considered significant on a direct and cumulative basis.

### 2.5.5 Mitigation

#### M-PR-1a **MITIGATION AND MONITORING PROGRAM: [DPLU] [Grading Inspection]**

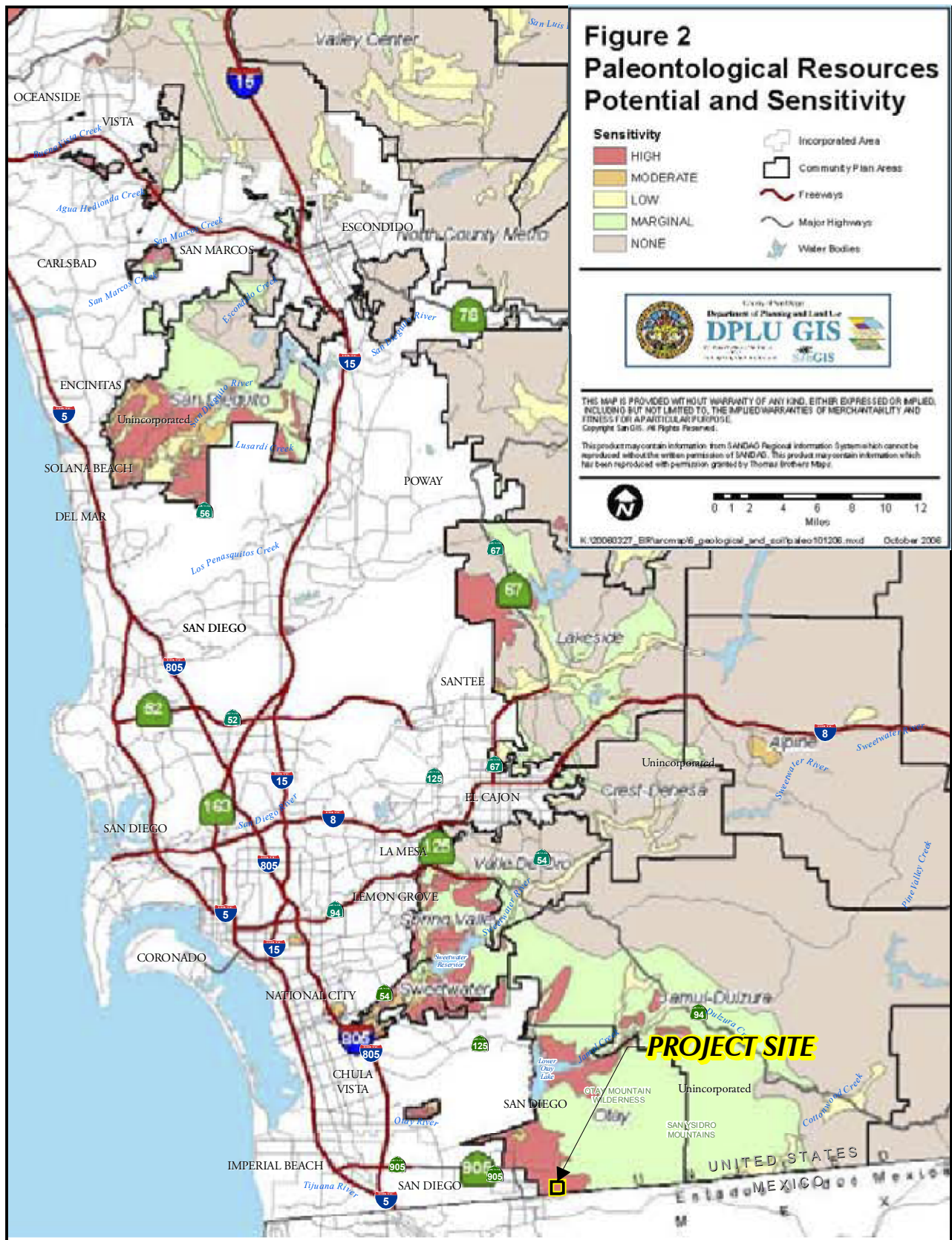
**Intent:** In order to mitigate potential impacts to previously unknown paleontological resources during Project grading and excavation activities, a mitigation and monitoring program shall be established. **Description of Requirement:** The impacts will be mitigated by implementing the mitigation and monitoring program detailed in the County's Guidelines for Determining Significance – Paleontological Resources (County of San Diego 2008). Initial cutting, grading, or excavation of undisturbed substratum in areas of high and moderate sensitivity will be monitored by a Project Paleontologist or a Paleontological Resources Monitor under the supervision of the Project Paleontologist. If paleontological resources are unearthed, the Qualified Paleontologist or Paleontological Monitor shall direct, divert, or halt any grading or excavation activity until such time that the sensitivity of the resource can be determined and the appropriate recovery implemented. If found, significant paleontological resources will be salvaged, cleaned, curated, and transferred to an accredited museum or university in California. Mitigation shall be considered complete when the County's Permit Compliance Coordinator, on behalf of the Director of Planning and Land Use, receives a final report prepared by the Project Paleontologist, and a letter from the accredited institution stating that the paleontological resources have been received and accepted. **Documentation:** The applicant shall prepare a final report documenting the findings and analysis of field work. The final report shall be submitted to the Department of Planning and Land Use. **Timing:** Fieldwork and analysis shall be completed prior to final grading inspection. **Monitoring:** The Department of Planning and Land Use shall review the final paleontological report in conformance with this mitigation measure and the San Diego County Paleontological Guidelines for Determining Significance.

### 2.5.6 Conclusion

Significant Direct and Cumulative Impact PR-1: Incorporation of Mitigation Measure M-PR-1, would ensure that potential significant direct and cumulative impacts to paleontological resources are reduced to less than significant levels by implementing a paleontological monitoring and reporting program according to the County's *Guidelines for Determining Significance – Paleontological Resources*. Mitigation includes monitoring during initial cutting, grading, or excavation of undisturbed substratum in areas of high and moderate sensitivity by a Project Paleontologist or a Paleontological Resources Monitor under the supervision of the Project Paleontologist. If paleontological resources are unearthed, the Qualified Paleontologist or Paleontological Monitor shall direct, divert, or halt any grading or excavation activity until such time that the sensitivity of the resource can be determined and the appropriate recovery implemented. If found, significant paleontological resources will be salvaged, cleaned, curated, and transferred to an accredited museum or university in California. Mitigation shall be considered complete when the County's Permit Compliance Coordinator, on behalf of the Director of Planning and Land Use, receives a final



report prepared by the Project Paleontologist, and a letter from the accredited institution stating that the paleontological resources have been received and accepted. With implementation of the paleontological mitigation and monitoring program, significant direct and cumulative impacts to paleontological resources would be reduced to a level below significance.



Source(s): SANDAG, SanGIS

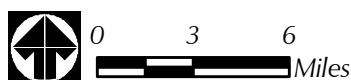


FIGURE 2.5-1  
San Diego County Paleontological Resources Potential  
and Sensitivity Map



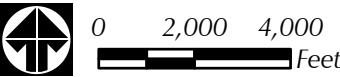
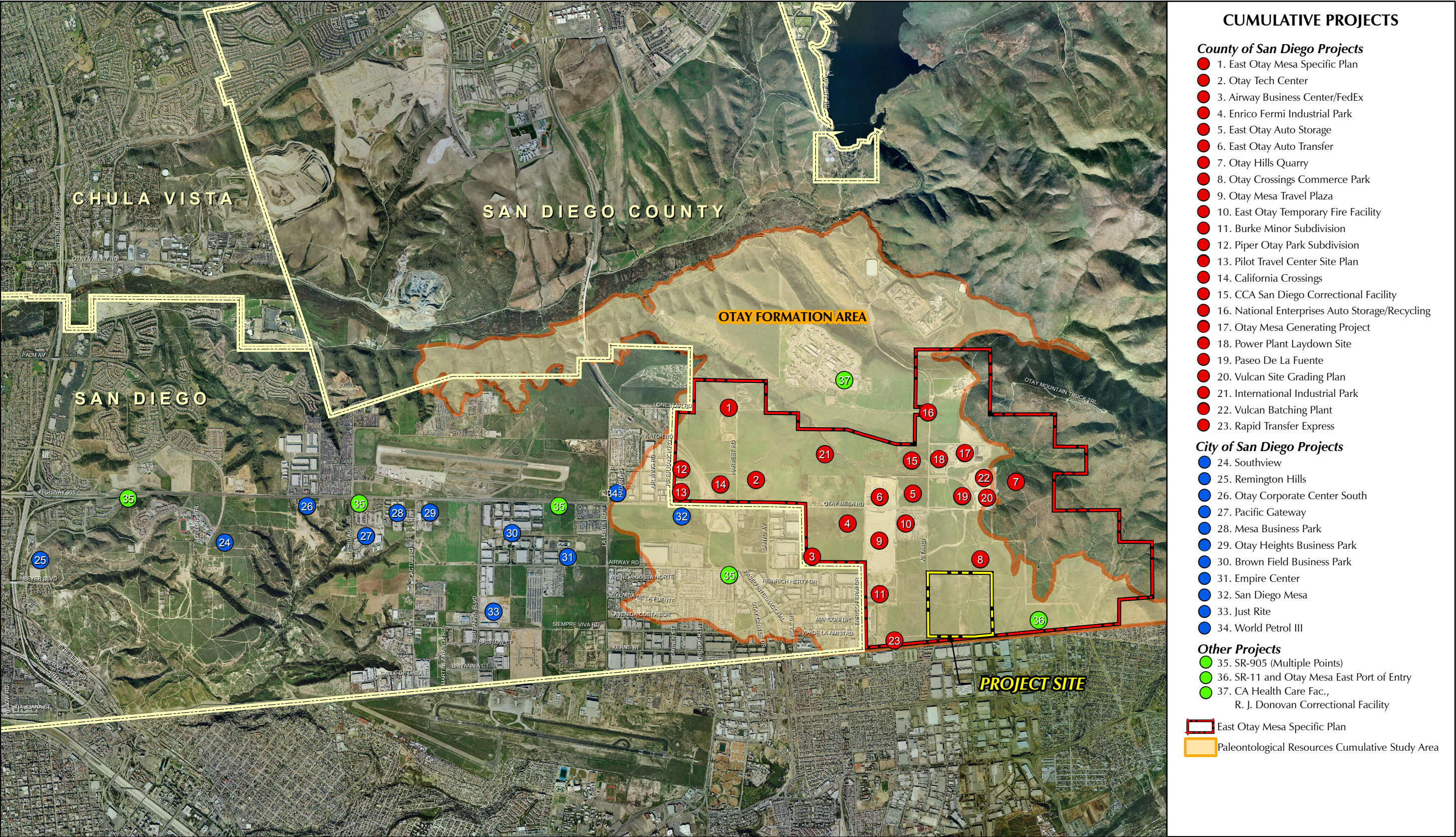


FIGURE 2.5-2  
Cumulative Study Area - Paleontological Resources